



Forward Collision Avoidance Radar and Vision Fusion S
ystem

C40T

Product Specification



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Preface

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Abbreviation Explanation

Abbreviation	Full Name
ADAS	Advanced Driver Assistance System
HMW	Headway Monitoring Warning
FCW	Forward Collision Warning

Product Overview

Product Introduction

The forward collision avoidance radar visual fusion system integrates radar and vision technologies, leveraging the strengths of both. Radar's strong penetration capability ensures reliable and accurate distance information, even in the dusty and harsh environments of mining operations. The vision system captures images through cameras and utilizes ADAS algorithms for target recognition and scene analysis. Compared to single-vision solutions, which are susceptible to environmental interference and lead to recognition failure, this fusion system significantly improves the reliability and accuracy of forward vehicle detection, effectively ensuring vehicle safety in mining areas.

Product Features

- Resolution: 1080P @ 25fps or 30fps
- Supports H.264/H.265 encoding and the N9M 2.0 protocol
- Vehicle recognition range greater than 120 meters, pedestrian recognition range greater than 80 meters
- The product's compact and lightweight main unit can be conveniently mounted on the windshield
- Can be connected to an external R-Watch, providing real-time driver alerts
- Algorithms tailored for mining scenarios

AI Feature

	
FCW	HMW

Product Specification

General	
System	Embedded Linux
Language	Chinese, English, Spanish and so on
Video	
Video Recording	1-channel
Maximum video resolution	1080P @ 30 fps
Image Settings	Adjustable brightness, hue, contrast, color saturation, and sharpness
Video Encoding	Options: H.264 and H.265 Default: H.264
Encoding Standard	Options: VBR (variable bit rate) and CBR (constant bit rate) Default: VBR
Camera Parameters	
Sensor Type	1/1.8" 2-megapixel CMOS sensor
Shutter Speed	1/60s-1/100,000s
Lens	Focal length 6mm HFOV: 56° ; VFOV: 31°
Lens Mount	M12
Wide Dynamic Range	Digital wide dynamic range
Backlight Compensation	Supported
Signal-to-noise Ratio (S/N)	≥48dB
Signal Light	
Working Status Indication Signal	The LEDs use a red, green, and orange tri-color display. 1. Normal operation: Green is always on. 2. Host self-test error: Red is always on. 3. CAN1 communication error: Red flashes (2 Hz). 4. CAN2 communication error: Green flashes (2 Hz). 5. Upgrading: Red and green flashes (1 Hz). 6. Calibration in progress: Orange flashes (2 Hz). 7. Calibration successful: Orange is always on (disappears after reboot). 8. Calibration failed: Orange and green flashes (1 Hz). 9. Uncalibrated: Orange and red flashes (1 Hz).
Power Supply	
Power Supply	9-16V Power
Consumption	Approximately 3.6W @ 12V
Environment	
Operating Temperature	-40° C ~ +75° C
Operating Humidity	15~90% non-condensing
IP Rating	IP5X
Dimension and Weight	
Dimensions	L126mm*W78mm*H44mm Tolerance: ±2.5mm

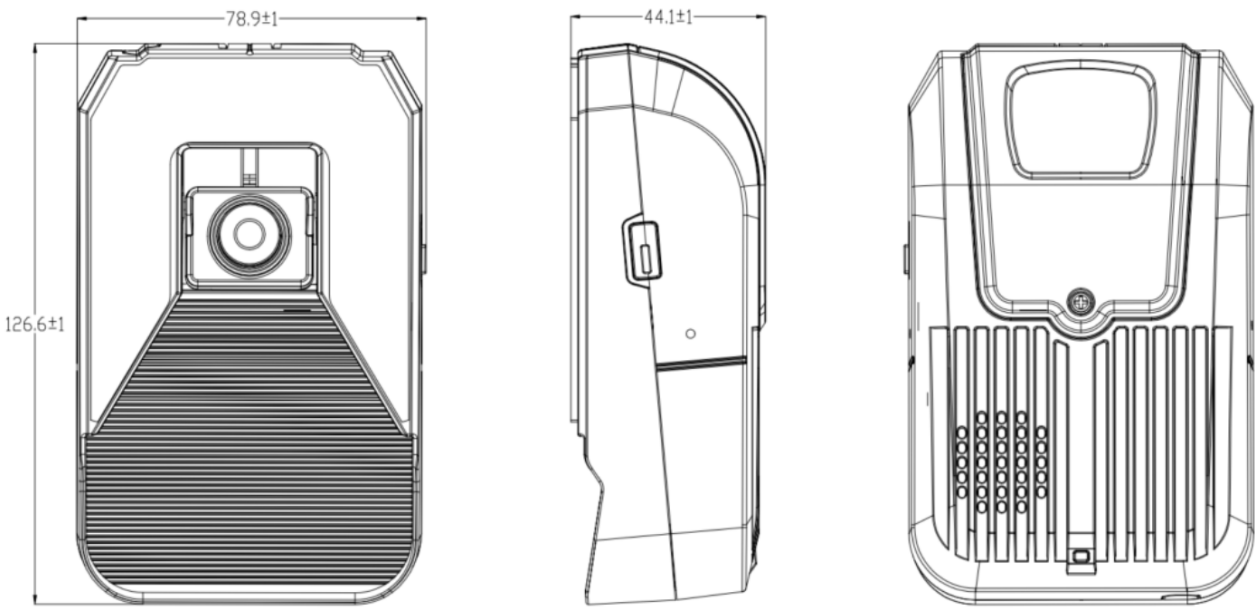
*Actual dimension and weight may vary depending on configuration, manufacturing process, and measurement method

Product Name		
Forward millimeter-wave radar		
	Long-Range Detection Performance	Medium-Range Detection Performance
Detectable Distance	0.2~170m@0°±4° 0.2~120m@±9°	0.2~70m@±9° 0.2~40m@±45°
Distance Accuracy	0.1m	
Distance Resolution	0.4m	
Detectable Velocity Range	-400~+200km/h	
Velocity Accuracy	0.1km/h	
Velocity Resolution	0.28km/h	
Horizontal Detection Angle Range	-9° ~+9°	-45° ~+45°
Horizontal Beamwidth	4.6° @0°	9.2° @0° ~13.0° @±45°
Horizontal Angle Accuracy	0.2°	0.6° @0° ~2.0° @±45°
Horizontal Angle Resolution	3.3°	6.6° @0° ~9.3° @±45°
Vertical Beamwidth	18°	
Target Height Measurement Capability	Supported	
Auto-Calibration Range	Azimuth: -6° ~+6° , Elevation: -6° ~+6°	
Data Update Interval	50ms	
Power sSupply	9~16V	

Product Dimension Diagram

(Unit: mm)

Camera:



Forward millimeter-wave radar:

